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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/803,258

03/09/2001

Edgar H. Callaway JR.

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8127

7590

07/13/2004

Daniel K. Nichols  
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EXAMINER

LIU, SHUWANG

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 07/13/2004

3

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/803,258

Applicant(s)

CALLAWAY ET AL.

Examiner

Shuwang Liu

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:

The examiner suggests using the applications instead of the Docket Number in the specification, for example, page 1, line 1, Docket Umber CM03333J should be Application Number 09/803,285.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation " the step of obtaining a 2N element first direct sequence spread spectrum code " in line 4. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 5, 6, 8, 15, 18, 19, 23, 24, 27, 34 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Jones et al. (US 6,108,317).

As shown in figure 7, Jones et al. discloses:

(1) regarding claim 1:

a method for operating a transmitter to transmit data, the method comprising the steps of:

reading one or more bits (470);

determining (476) a first cyclical shift based on a bit pattern of the one or more bits;

obtaining a first direct sequence spread spectrum code (478) characterized by the first cyclical shift; and

transmitting (404) the first direct sequence spread spectrum code (column 14, line 15-column 15, line 21).

(2) regarding claim 2:

wherein: the step of reading a plurality of bits comprises the sub-step of: reading N bits; and the step of obtaining a  $2N$  element first direct sequence spread spectrum code that includes an M-sequence and one or more appended zeros (column 15, line 61-column 16, line 20).

(3) regarding claim 4:

wherein the step of obtaining a first direct sequence spread spectrum code characterized by a first cyclical shift comprises the sub-step of: reading the first direct sequence spread spectrum code from a memory (register, see figure 7B2).

6. Claims 1, 2, 4, 6, 8, 11, 18, 19, 21, 27 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Karino (US 6,738,413).

As shown in figures 1, 2, 6 and 10, Karino discloses:

(1) regarding claim 1:

a method for operating a transmitter to transmit data, the method comprising the steps of:

reading one or more bits (from 10);

determining (11) a first cyclical shift based on a bit pattern of the one or more bits (claim 6);

obtaining a first direct sequence spread spectrum code (output from 100 in figure 10) characterized by the first cyclical shift; and

transmitting (output from the first transmission channel 1022) the first direct sequence spread spectrum code (column 2, line 3-column 3, line 37 and column 9,

lines 15-column 10, line 65).

(2) regarding claim 2:

wherein: the step of reading a plurality of bits comprises the sub-step of: reading N bits; and the step of obtaining a  $2N$  element first direct sequence spread spectrum code that includes an M-sequence and one or more appended zeros (column 4, lines 9-24, note: it is inherent that PN sequence includes an M-sequence and one or more appended zeros).

(3) regarding claim 4:

wherein the step of obtaining a first direct sequence spread spectrum code characterized by a first cyclical shift comprises the sub-step of: reading the first direct sequence spread spectrum code from a memory (10).

(4) regarding claim 6:

transmitting a second direct sequence spread spectrum code (output from a second transmission channel 1022).

(5) regarding claim 8:

A method for operating a receiver, the method comprising the steps of:

receiving (see figure 10) a signal that includes a first direct sequence spread spectrum code;

determining (11) a correct relative cyclical shift of the first direct sequence spread spectrum code (claim 6); and

outputting (output from 1013) one or more bits having a bit pattern associated with the correct relative cyclical shift (column 2, line 3-column 3, line 37 and column 9,

lines 15-column 10, line 65).

(6) regarding claim 11:

wherein the step of receiving a signal comprises the sub-step of: receiving a signal that includes the first direct sequence spread spectrum code (first reception channel 1012), and a second direct sequence spread spectrum code (second reception channel 1012).

(7) regarding claim 18:

a spread spectrum transmitter comprising:

a bit pattern encoder (see SF in figure 4) for receiving one or more bits at an input and outputting a predetermined relative cyclical shift value in response to each possible bit pattern of the one or more bits at an output (column 4, line 35-column 5, line 42); and

a cyclical shifter (12-16) for receiving the relative cyclical shift value at an input and outputting a first spread spectrum code that has been shifted by the predetermined cyclical shift value at a cyclical shifter output (column 2, line 3-column 3, line 37 and column 9, lines 15-column 10, line 65).

(6) regarding claim 19:

further comprising:

a modulator (1203) including a first modulator input for receiving a first baseband signal including first spread spectrum code that has been shifted by the predetermined cyclical shift value.

(7) regarding claim 21:

a second modulator input for receiving a second baseband signal (input to a second transmission channel 1022).

(8) regarding claim 27:

a spread spectrum receiver comprising:

a first correlator (1013) for determining a relative cyclical shift of a first received spread spectrum code; and

a relative shift to bit pattern decoder (100) for outputting the identity of an information symbol based on the relative cyclical shift of the received spread spectrum code (figure 2, column 2, line 3-column 3, line 37 and column 9, lines 15-column 10, line 65).

(9) regarding claim 38:

a communication system (figure 10) comprising:

a transmitter including:

a bit pattern encoder (see SF in figure 4) or receiving one or more bits at an input and outputting a predetermined relative cyclical shift value in response to each possible bit pattern of the one or more bits at an output; and

a cyclical shifter (12-16) for receiving the relative cyclical shift value at an input and outputting a first spread spectrum code that has been shifted by the predetermined cyclical shift value at a cyclical shifter output; and

a receiver including:

a first correlator (1013) for determining a relative cyclical shift of the first spread spectrum code; and



a relative shift to bit pattern decoder (100 and figure 2) for outputting the identity of an information symbol based on the relative cyclical shift of the received spread spectrum code (figure 2, column 2, line 3-column 3, line 37 and column 9, lines 15-column 10, line 65).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 23, 24, 34, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karino in view of Langberg et al. (US 5,852,630).

Karino discloses all of the subject matter as described above except for the method written by a software program embodied in a computer-readable medium or processor.

However, Langberg et al. teaches that the method and apparatus for a transceiver warm start activation procedure with precoding can be implemented in software stored in a computer-readable medium. The computer-readable medium is an electronic, magnetic, optical, or other physical device or means that can be contain or store a computer program for use by or in connection with a computer-related system or method (column 3, lines 51-65). One skilled in the art would have clearly

recognized that the method of Karino would have been implemented in a software. The implemented software would perform same function of the hardware for less expense, adaptability, and flexibility. Therefore, it would have been obvious to use the software in Karino as taught by Langberg et al. in order to reduce cost and improve the adaptability and flexibility of the communication system.

9. Claims 5, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karino in view of Sawahashi et al. (US 5,748,623).

Karino discloses all of the limitations as applied to claims 1 and 8 except for teaching transmitting and receiving a quadrature phase shift key (QPSK) signal and sampling the signal to obtain a sequence of complex chip values.

However, Sawahashi et al. (figures 3, 4 and 6-8) teaches a QPSK modulator and a QPSK demodulator. The modulator includes a D/A converter (15 and 16) and means (upconverter) for modulating (17) the carrier wave ( $\cos [2\pi f_c t]$ ) with each analog baseband signal for each of two channels. The demodulator includes sampling (38 and 39) the signal to obtain a sequence of complex chip sequence.

One skilled in the art would have clearly recognized that sampling (A/D converter) for demodulator and D/A converter and modulating the carrier wave for modulator are basic elements in the communication system. It would be desirable to provide a spread spectrum transmitter and receivers with a high data rate by using QPSK modulating scheme with the basic elements (a/d, d/a and upconverter). It would have been obvious to one of ordinary skill in the art at the time the invention was made

to apply the QPSK modulator having D/A converters and upconverter and the QPSK demodulator having A/D converter as taught by Sawahashi et al. in Karino's system in order to achieve a high data rate transmission.

10. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karino and Langberg et al. (US 5,852,630) as applied in claim 24 above, further in view of Sawahashi et al. (US 5,748,623).

Karino and Langberg et al. disclose all of the limitations as applied to claims 1 and 8 except for teaching transmitting and receiving a quadrature phase shift key (QPSK) signal and modulating sampling the signal to obtain a sequence of complex chip values.

However, Sawahashi et al. (figures 3, 4 and 6-8) teaches a QPSK modulator and a QPSK demodulator. The modulator includes a D/A converter (15 and 16) and means (upconverter) for modulating (17) the carrier wave ( $\cos [2\pi f_c t]$ ) with each analog baseband signal for each of two channels. The demodulator includes sampling (38 and 39) the signal to obtain a sequence of complex chip sequence.

One skilled in the art would have clearly recognized that sampling (A/D) converter) for demodulator and D/A converter and modulating the carrier wave for modulator are basic elements in the communication system. It would be desirable to provide a spread spectrum transmitter and receivers with a high data rate by using QPSK modulating scheme with the basic elements (a/d, d/a and upconverter). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the QPSK modulator having D/A converters and upconverter and

the QPSK demodulator having A/D converter as taught by Sawahashi et al. in the system of Karino and Langberg et al. in order to achieve a high data rate transmission.

### ***Double Patenting***

11. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

12. Claims 1-38 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-4, 5-18, 2-40 of copending Application No. 10/198,712, respectively. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

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patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1, 2, 8, 18,, 27, and 38 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 4 of patent No. 6,519,275. Although the conflicting claims are not identical, they are not patentably distinct from each other because the broader application claims would have been obvious in view of the narrow issued claims (see *In re Emert*, 124 F.3d 1458, 44 USPQ2d 1149).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (703) 308-9556.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

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**(703) 872-9306 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



Shuwang Liu  
Primary Examiner  
Art Unit 2634

July 2, 2004